CLAIMS

1. A fuel cell that includes an electrolyte membrane having (a) a cathode and a gas diffusion layer arranged in the stated order on one surface of the electrolyte membrane, and (b) an anode and another gas diffusion layer arranged in the stated order on the other surface of the electrolyte membrane, wherein electricity is generated when an oxidizing gas is distributed along and passed through the cathode-side gas diffusion layer and a fuel gas is distributed along and passed through the anode-side gas diffusion layer,

the cathode-side gas diffusion layer comprising a first layer and a second layer, wherein

the first layer is in contact with the cathode,

the second layer is thicker than the first layer, and

the second layer is the layer along which the oxidizing gas is distributed and through which the oxidizing gas is passed.

2. The fuel cell of Claim 1, wherein

the first layer and second layer of the cathode-side gas diffusion layer have a plurality of pores, and

an average pore size of the second layer is greater than an average pore size of the first layer.

3. The fuel cell of Claim 1, wherein

the first layer and second layer of the cathode-side gas diffusion layer are formed by adhering conductive particles to a fibrous porous base material, and

the stated formation of the first layer and second layer further results in the formation of a plurality of pores throughout the first layer and the second layer.

4. The fuel cell of Claim 3, wherein

an average specific surface area of the conductive particles within the first layer of the cathode-side gas diffusion layer is greater than an average specific surface area of the conductive particles within the second layer.

5. The fuel cell of Claim 3, wherein

the fibrous porous base material is carbon paper and the conductive particles are carbon particles.

6. The fuel cell of Claim 5, wherein

the carbon particles of the first layer are made of

(i) furnace black or

(ii) furnace black mixed with acetylene black, expanded graphite, fibrous graphite, or any combination thereof, and

the carbon particles of the second layer are made of

(i) acetylene black or

(ii) acetylene black mixed with furnace black.

7. The fuel cell of Claim 6, wherein

the carbon particles of the first layer have an average specific surface area ranging from 100 m^2/g to 1000 m^2/g inclusive, and

the carbon particles of the second layer have an average specific surface area of less than 100 m^2/g.

8. The fuel cell of Claim 1, wherein

the cathode-side gas diffusion layer, made up of the first and second layers, has a water retention capacity ranging from 0.5 mg/cm^2 to 1.5 mg/cm^2 inclusive, and a water retention density ranging from 0.05 g/cm^3 to 0.5 g/cm^3 inclusive.

9. A fuel cell that includes an electrolyte membrane having (a) a cathode and a gas diffusion layer arranged in the stated order on one surface of the electrolyte membrane, and (b) an anode and another gas diffusion layer arranged in the stated order on the other surface of the electrolyte membrane, wherein electricity is generated when an oxidizing gas is distributed along and passed through the cathode-side gas diffusion layer

and a fuel gas is distributed along and passed through the anode-side gas diffusion layer,

the cathode-side gas diffusion layer comprising 2 layers of varying water retentivity.

10. The fuel cell of Claim 9, wherein

the cathode-side gas diffusion layer is arranged so that, of the 2 layers of varying water retentivity, the layer with comparatively high water rententivity is in contact with the cathode.